

Math Kangaroo 2007 in USA

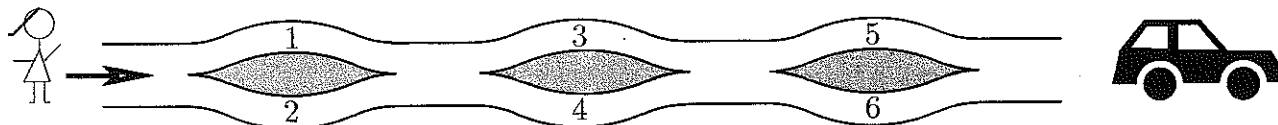
International Competition in Mathematics

Level of grade 3 • Level of grade 4

March 15, 2007

3 point questions

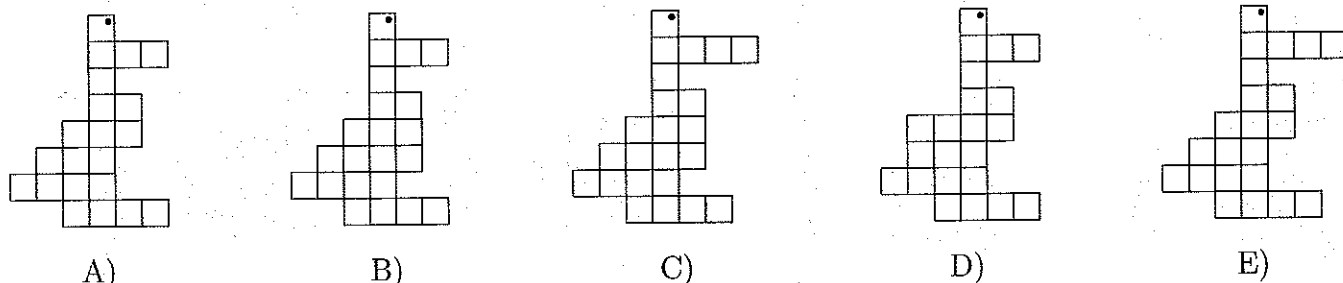
1. Anna, not taking any steps backwards, went to the car using a path shown in the picture, and picked up numbers she encountered on her way. Which set of the numbers below could she pick up?



- A) 1, 2, 4 B) 2, 3, 4 C) 2, 3, 5 D) 1, 5, 6 E) 1, 2, 5
2. How many letters from the word **PROBLEM** are repeated in the word **KANGAROO**?

- A) 2 B) 3 C) 4 D) 5 E) 6

3. Which pattern (shown below) consists of the largest number of squares?



4. Helen has \$5. She is going to buy 5 notebooks, that cost 80 cents each and a certain number of pencils, that cost 30 cents each. How many pencils at most can she buy?

- A) 5 B) 4 C) 3 D) 2 E) 1

5. There are 9 streetlights on one side of an alley in the park. The distance between neighboring streetlights is 8 meters. Gregory went through this alley from the first lantern to the last lantern. How many meters did he walk?

- A) 48 B) 56 C) 64 D) 72 E) 80

6. To open a safe, a 3-digit code needs to be used. How many possible codes are there if it is known, that only three numbers, 1, 3, and 5, exist in this code, and each of them is used only one time?

- A) 2 B) 3 C) 4 D) 5 E) 6

7. $4 \times 4 + 4 + 4 + 4 + 4 + 4 \times 4 = ?$

- A) 32 B) 44 C) 48 D) 56 E) 144



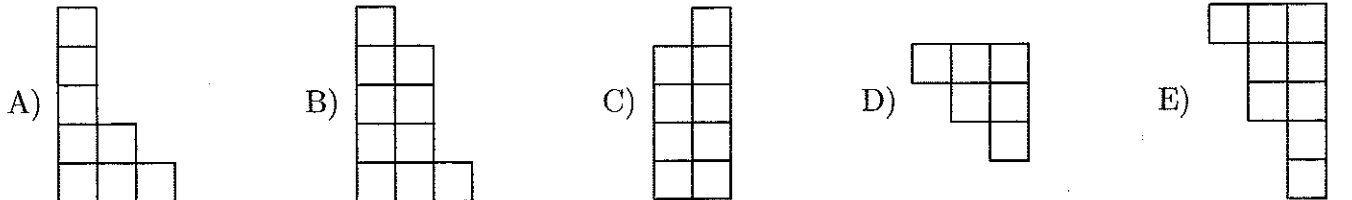
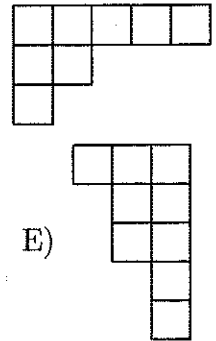
Math Kangaroo 2007 in USA

International Competition in Mathematics

Level of grade 3 • Level of grade 4

March 15, 2007

8. Which figure from those shown below can be connected with the figure shown to the right, in order to get a rectangle?



4 point questions

9. What number needs to be written in the shaded cloud in order to get the number in the last cloud as a result of operations shown in the picture?



- A) 1 B) 3 C) 5 D) 7 E) 9

10. The given square must be filled in such a way that each of the digits 1, 2, 3 appears in each row and in each column once and only once. If Harry started to fill in the square as shown, what number is he allowed to write in the square marked by the question mark?

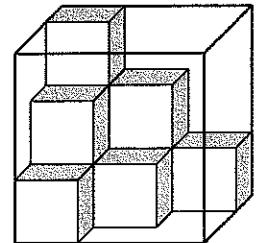
1	?	
2	1	

- A) 1 B) 2 C) 3 D) 1 or 2 E) every of 1, 2, 3

11. What is the smallest number, bigger than 2007, so the sum of its digits is equal to the sum of digits of 2007?

- A) 2016 B) 2015 C) 2009 D) 1008 E) 2070

12. Annette puts identical cubic blocks into a cubic aquarium. She has already put in a certain number of them (look at the picture). How many of those blocks does she still need to add to fill up the aquarium?



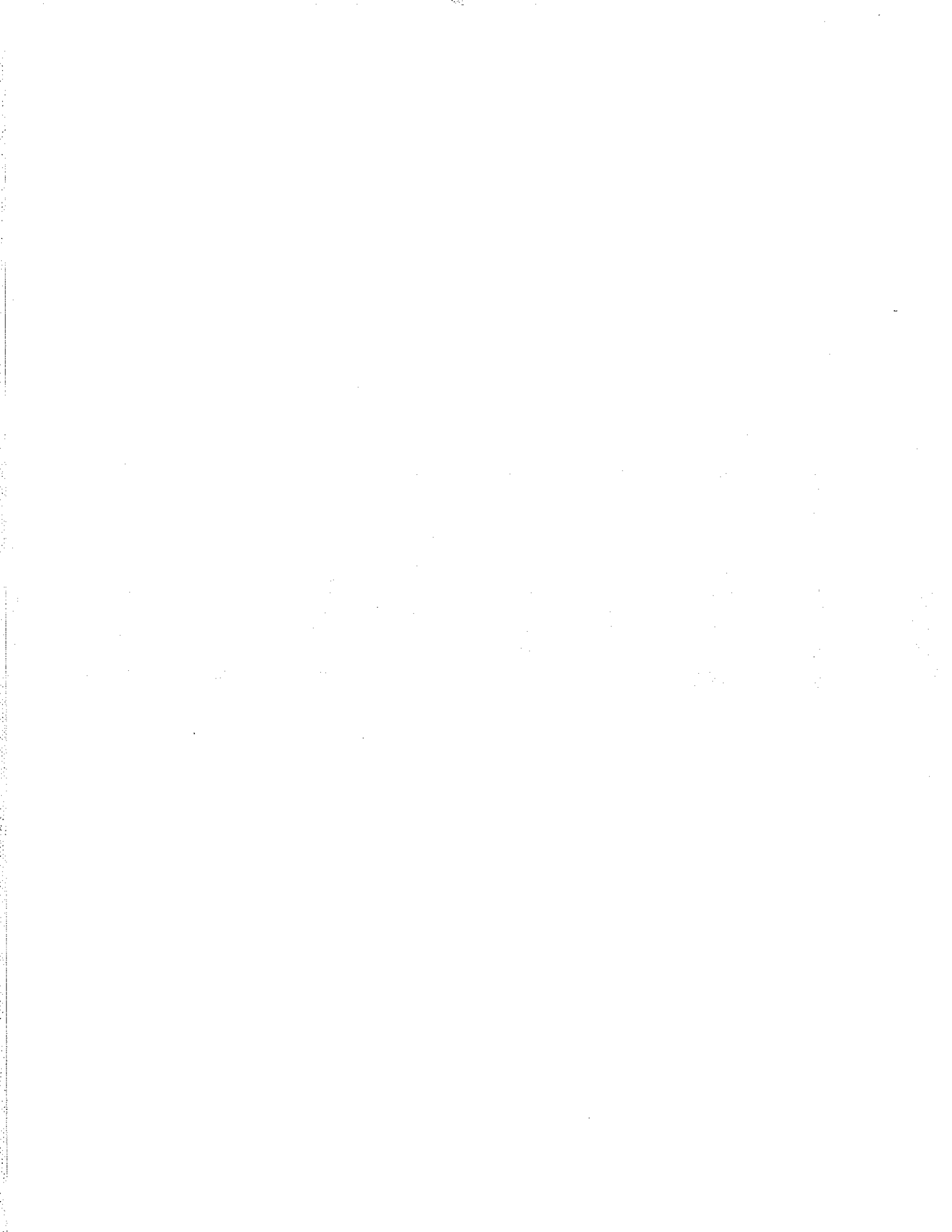
- A) 9 B) 13 C) 17 D) 21 E) 27

13. Peter, who is 1 year and 1 day older than Paul, was born January 1st, 2002. When was Paul born?

- A) January 2nd, 2003 B) January 2nd, 2001 C) December 31st, 2000
D) December 31st, 2002 E) December 31st, 2003

14. A string has been cut into 400 pieces, each 15 cm long. How long was the string?

- A) 6 km B) 60 m C) 600 cm D) 6000 mm E) 60 000 cm



Math Kangaroo 2007 in USA

International Competition in Mathematics

Level of grade 3 • Level of grade 4

March 15, 2007

15. Peter wrote a one digit number, and next to it on the right of it he wrote another digit to form a 2 digit number. Then he added 19 to this number and the sum was 72. What was the first digit he wrote?

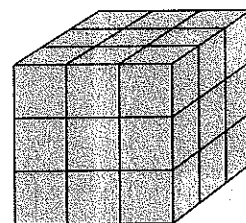
- A) 2 B) 5 C) 6 D) 7 E) 9

16. An electronic watch indicates time 02:07. After how much time will the same four digits show up again?

- A) 4 h 55 min B) 6 h C) 10 h 55 min D) 11 h 13 min E) 24 h

5 point questions

17. A cube with an edge 3 cm long, has been painted grey. Next, it has been cut into small cubes with an edge 1 cm long (see the picture). How many small cubes have exactly two grey sides?



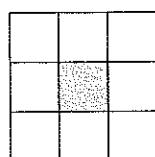
- A) 4 B) 6 C) 8 D) 10 E) 12

18. We name a number as *palindromic* if it doesn't change after its digits are written in reverse order. Some examples of such numbers are 1331 and 24642.

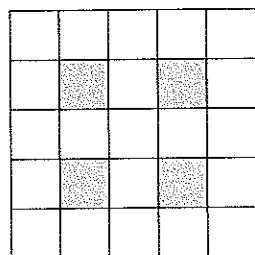
The car's odometer shows 15951 kilometers. After how many more kilometers will a palindromic number show up on the odometer again, for the first time?

- A) after 100 km B) after 110 km C) after 710 km D) after 900 km E) after 1010 km

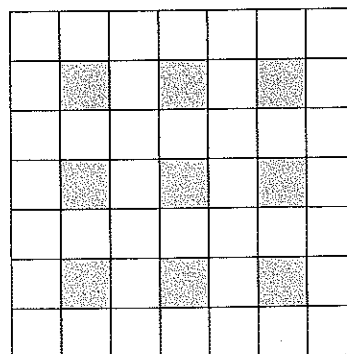
19. If you count the small white squares in the sequence of big squares shown in the pictures below, you will get the numbers listed:



8 white squares



21 white squares



40 white squares

How many white squares will be in the next big square?

- A) 50 B) 60 C) 65 D) 70 E) 75

Math Kangaroo 2007 in USA

International Competition in Mathematics

Level of grade 3 • Level of grade 4

March 15, 2007

20. Adam, Bolek, Celina, Daniel, and Eve formed a line to the play cashier. Adam is standing farther from the cashier than Celina. Bolek is standing closer to the cashier than Adam and right after Daniel. Daniel is standing closer than Celina, but he isn't first in the line. What place, counting from the cashier, is Eva occupying?

- A) 1st B) 2nd C) 3rd D) 4th E) 5th

21. In four corners of a rectangle with dimensions $15\text{ cm} \times 9\text{ cm}$, four squares with perimeters equal to 8 cm were cut out. What is the perimeter of the polygon created that way?

- A) 48 cm B) 40 cm C) 32 cm D) 24 cm E) 16 cm

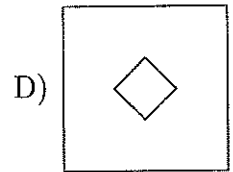
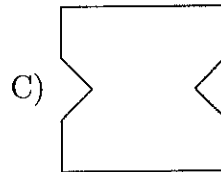
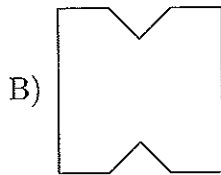
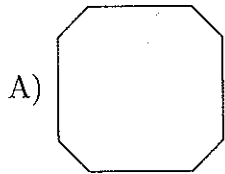
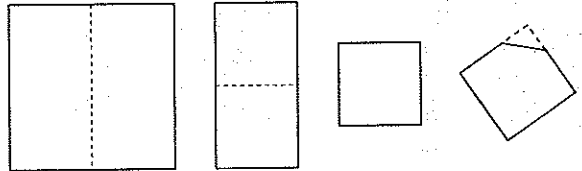
22. At a round table there are chairs placed with the same distance between them. They are numbered subsequently $1, 2, 3, \dots$. Peter is sitting on chair number 11, directly across from Chris, who is sitting on chair number 4. How many chairs are there at the table?

- A) 13 B) 14 C) 16 D) 17 E) 22

23. How many digits have to be written, in order to write down every number from 1 to 100 inclusive?

- A) 100 B) 150 C) 190 D) 192 E) 200

24. A square sheet of paper is folded twice so that a square is formed again. In that square one of the corners is cut off (see the picture). Which one of the pictures below does not represent this unfolded sheet of paper?



E) Each of pictures A), B), C), D) can represent this unfolded sheet of paper